Analyzing Dental Suicidality Rate Correlations: A Cross Profession Survey

An Honors Thesis (HONR 499)

by

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Abstract

This research aimed to investigate the truth behind claims of high suicide rates among dental practitioners by assessing suicidality ratings as well as various prediction factors in students pursuing a career in the dental profession. To do so, undergraduate students at Ball State University were issued an email survey containing a 19-item modified version of the Beck Scale for Suicide Ideation. The suicidality scores of the undergraduate pre-dental students were compared to the control group, which contains all undergraduate students from other areas of study. Although support was not found for pre-dental students having a higher suicidality rating than the general undergraduate population, it was suggested that freshman and sophomore undergraduates have significantly higher suicidality rates than junior, senior, and senior + undergraduates.

Acknowledgments

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Process Analysis Statement

I am currently pursuing a career to become a dentist and with my senior thesis I wanted to connect both my desire to pursue this profession as well as my interest in psychology. Through my research I was able to investigate one specific aspect that is harming dental professionals in hopes of improving the field that I will be joining in the near future. The main difficulty throughout my research was the ethical issues involved with conducting research about the participant's experiences with suicidal thoughts and ideations. I knew this topic involved some risk, however, suicide is an important topic that must be discussed and better understood. My study can be carried over to any profession and replicated for the same implications to generalize helpful findings cross professionally and improve mental health collectively.

Throughout this process I have learned a great deal about the dental field and even myself. I knew this profession was difficult and posed many challenges throughout the educational process, but I was shocked by the toll it can take on ones mental health. This research has given me a greater understanding of my strengths and weaknesses as well as a greater appreciation for my future career. Medical professionals of any kind pursue their career with the hopes of helping others, often at the expense of their own mental or physical health. Mental health is a rapidly growing issue affecting many individuals, the worst part is that it is often too late before it is ever apparent to others. Through the results of my study I know for a fact there are an alarming number of individuals on the Ball State University campus that are experiencing similar feelings and suicidal thoughts. Suicidality on college campuses is very

common and appears to only be increasing. I hope to continue my research in the future wholistically to better understand this tragedy and to be able to provide answers and relief for people who are in a dark place and see no way out.

Analyzing Dental Suicidality Rate Correlations: A Cross-Profession Survey

The purpose of the current research was to determine the validity of claims of abnormally high suicide rates among dental professionals. Many studies previously conducted have solely focused on the dental field alone without considering its correlation to other professions in the medical field. Suicidality, an individual's proneness to commit suicide, was assessed and generalized cross-professionally to determine if the dental field attracts a certain personality type that is more at-risk. There is currently insufficient data to make a viable conclusion in response to the reported suicide rates among dentists in relation to the greater medical field and society as a whole.

General Population Suicidality & Risk Factors

In the United States, suicide is the 10th leading cause of death with an estimated 44,965 people who take their own life each year, according to the American Foundation for Suicide Prevention (2016). Mental health issues and suicide in the United States continues to be a progressive problem, according to the Center for Disease Control and Prevention (2016) the suicide rate has increased 24% from 1999 to 2014 with the large majority of increase occurring towards the latter. Paralleling the increase in the national suicide rate, is the increase in national suicidality. Lee et al. (2010) conducted a phone survey of 2,054 participants using the Brief Symptom Rating Scale (BSRS-5), and concluded that the lifetime prevalence of suicide ideation in the United States is 18.49%. This study also suggests that a wide range of other disorders and mental health issues are comorbid with suicide ideation including psychiatric disorders,

depression, inferiority, hostility, anxiety, insomnia, psychological distress, divorce, unemployment, and family or friend suicidal behavior.

Control Group Suicidality

The prevalence of suicide in American society is only amplified on a college campus. For many students, college is the first time in their life that they are completely on their own and a sink or swim mentality is embodied by the majority. In a study conducted by Arria, O'Grady, and Wish (2009), 1,249 first year college students were given a self administered Beck Depression Inventory scale survey for assessing depression, suicide ideation, parent-child conflict, perceived social support, and affective dysregulation. The results suggested that 6% of all first year students had current suicide ideation and another 6% had highly depressive symptoms. It was concluded that the majority of participants with suicide ideation did not have depressive symptoms, but did lack social support, therefore, factors other than depression must also be considered. Kleiman & Liu (2013) closely examined the role of social support as a protective factor, opposed to a predictive factor, for suicide risk. Kleiman and Lui's study used a Likert scale of perceived social support in conjunction with participant history from the National Comorbidity Study to conclude that parental death and divorce, as well as psychological health issues were associated with a higher likelihood of suicide attempt, while a greater social support group was associated with a lower likelihood. Another study conducted by Liu et al. (2018) concluded that approximately 20% of college students report having suicidal thoughts, 20%

report some form of self harm, and 9% report a suicide attempt at some point in their college career.

On many college campuses it is common for different areas of academic studies to differ in rigor and demands, therefore, many stereotypes develop regarding certain areas of focus as more stressful. Allred, Granger, & Hogstrom (2013) aimed to determine validity in the stereotype that science majors are highly stressed and socially introverted by examining personality factors, as well as the specific area of study. The results of their study found that there were no significant differences between stress and major. Their study suggests that stress alone is not a significant factor in predicting suicidality, although it may be comorbid.

Dental Suicidality

Job-related stressors have a large impact on an individual's decision to commit suicide. Factors such as rapidly-changing technology, performance pressure, competition, money management as well as many others can take a toll on an individual. Specifically within the dental field, practitioners are exposed to many, if not all, of these stressors. Touyz (2015) concluded that it can be difficult to determine when stress changes to distress for dentists, and when this occurs the many internal and external stressors present in the field begin to take effect. Coping skills are likely the most effective way to avoid any detrimental problems for dentists, but it is difficult to assess when the development of the coping skills needs to occur and it is highly subjective. Ayatollahi, Ayatollahi, & Owila (2012) indicated that 83% of dentists believe their profession is very stressful, and among these dentists, those who practiced in a solo practice

for over 18 years and reported high stress levels also reported that their anxiety was a result of problems with their patients. There is currently a lack of supporting evidence for either side in the debate regarding the suicide rates among dentists. Lange, Fung, & Dunning (2012) stated that the rumors about high dental suicide rates can be traced back to studies from the 1960's claiming that statistical evidence supported these claims. On the contrary, the American Dental Association (ADA) conducted a study in 1975 that did not support this notion; however, many studies since then have attempted to replicate these previous studies, but the results are highly conflicting.

Male versus Female

Kleiman & Liu (2013), within their study of social support as a protective factor as previously discussed, also concluded that lower age, lower education, and female gender were all correlated with a higher likelihood of a lifetime of suicide attempt. Most suicide research related to gender suggests that females will attempt suicide more often with less success, but overall males are more likely to attempt suicide and be successful. According to Demir (2018), males are more likely to commit suicide based on the historical statistics that state between 2007 and 2016, males accounted for 72.5% of all suicide deaths in the United States.

Present Research

A survey was the most useful method for collecting data from a wide sample set. The use of a survey allows a broad range of access to professionals within various fields under the umbrella of health care. Survey data is the most efficient method for collecting information from

participants. Alhassan, Basudan, & Binanzan (2017) used a two-part, self-administered survey to reach undergraduate dental students at the College of Dentistry of Kansas State University, excluding those who had not completed one full year or were receiving psychological help. These students were asked to answer personal history information followed by questions regarding their satisfaction in different areas of their field using a Likert scale (0 to 5). Cooper, Faragher, & Rout (1989) used 1,928 questionnaires that were randomly selected from a sample of 4000 and distributed among 20 different practice types to reflect the diversity of the field, as well as the variance in social settings to analyze the job satisfaction of the medical field.

Although much of the prior research regarding suicide is very conflicting, it was clear that the suicide rate in the United States continues to rise as a result of many contributing factors. Most researchers agree that no one factor is to blame; however, there is controversy over which factors have a more significant role in these suicidal behavior. The large majority of previous research in this field has focused on depression, as it was thought to have the most significant role in suicide, but there is considerable research suggesting that it is merely just a component of the bigger picture. While there is ample research over suicide, there was a lack of data that attempted to compare occupation to suicidal behavior. This study aimed to study those individuals pursuing a profession in the dental field to determine a possible explanation for the high reported dental suicide rate. It is possible that the profession attracts a certain type of individual that is more prone to suicide, or that something along the educational pathway allows for the accumulation of stressors, thus increasing suicide ideation. If the latter is true, it is likely

that the average suicidality score of all pre-professional students would be higher than the average of all other participants given the similar educational requirements. One concern of this study was that posing questions regarding suicide may present stresses to an individual who may already be having thoughts of suicide or engaging in suicidal behavior. While this is possible, it is likely to produce little to no reactivity in study participants. According to Dazzi et al. (2014), among the 13 studies that were analyzed, no studies showed a statistically significant increase in suicide ideation after the participants were asked questions about suicide.

H1: Pre-Dental students will collectively have a higher suicidality rating than the control group.

Although the study conducted by Allred, Granger, & Hogstrom (2013) suggested that there is no correlation between stress and major, there are factors other than stress such as depression, social support, anxiety, family history, and more that contribute to suicide ideation. Many dentists perceive their profession as stressful and there are many elements and demands that the job requires that are unique to the field. The dental profession is unique in the sense that it is one of the few professions that requires medical knowledge as well as business savvy for establishing a successful practice.

H2: Junior and senior level students, as a whole, will have a higher suicidality rating than freshman and sophomore undergraduate students.

First-year students often feel like school will never end and that they have ample time to enjoy college, whereas 3rd and 4th year students are often cramming to meet all the requirements

for graduation. College classes are intentionally structured using a scaffolding strategy to build on previous matter and progressively become harder, implying that the further one progresses, the more difficult it will be. At the end of ones college career it is likely that they are experiencing the most uncertainty that they have ever experienced in their life, even more so than when first entering college. Many students are forced to juggle an intense course load with capstone projects and theses, as well as planning the rest of their future through graduate school applications, high level entry exams and job applications. The American Foundation for Suicide Prevention (2017) report on suicide rates in America shows a steady trend of an increasing number of suicides as age increases. According to the statistics, it is suggested that older individuals commit suicide at higher rates than younger individuals. A report over student suicide rates in England and Wales from 2013 to 2017 found that the suicide rate was lower among first year college students than all other years (Office for National Statistics, 2018). This finding suggests that students in higher grade levels are more suicidal than students in younger grade levels.

H3: Students with double majors will collectively have higher suicidality rates than students with a single major.

Students who are majoring in two different areas of study have to worry about taking more classes, scheduling conflicts, and learning different material all while trying to maintain a healthy and balanced lifestyle. Double majors must handle the common stresses that go along with pursuing a college degree in addition to those that are unique to double majoring. If the two

topics that an individual is majoring in do not overlap in content, it is likely that these stresses are only enhanced, causing more stress.

Method

Participants

There were 168 participants who were at least 18 years of age. The participants were undergraduate students from a wide range of majors and backgrounds on the campus of Ball State University. Participants were issued a modified survey of the Beck Scale for Suicide Ideation and willingly completed the survey on their own time with no compensation provided.

Materials

A computer with Internet access was used, along with appropriate access to the Qualtrics survey software. A modified version of the Beck Scale for Suicide Ideation (BSS) was issued as a 19-item survey to participants via email. The BSS was used because it is the only scale to be supported by prior research as a valid scale for suicidality. The BSS uses a Likert scale from 0 to 2 with the highest possible score being a 38, the modified version for this survey used a likert scale of 0 to 3 with the lowest possible score of 3 and the highest possible score of 58. There are no cut off scores for psychometric analysis, a higher score simply means that there is a larger risk compared to the other participants. Examples of the items from the 1979 study from Beck et al., include: “Desire to make active suicide attempt,” “Attitude toward ideation/wish,” and “Deterrents to active attempt.” Hilsenroth & Segal (2004) concluded their assessment of the Beck Depression Inventory-II (BDI-II), the Beck Hopelessness Scale (BHS), and the Beck Scale

for Suicide Ideation (BSS), by recommending use of the BSS over the BHS because of the direct link to suicidality.

Procedure

The participants were issued the 19-item modified Beck Scale for Suicide Ideation (BSS) via an email link. Data was anonymously collected from Ball State University undergraduate participants who volunteered their time to answer the survey questions. The only personal information that was collected from the participants was their age, class standing, and their area of study, particularly whether or not they are pre-dental or a part of another pre-professional program. Data from this study is stored indefinitely on a secure computer for possible future use in branching studies, however no identifiable markers were collected or stored. At the beginning of the survey there was a consent form to inform participants of all possible risks and benefits that could result from participating in this study. Survey data was distributed and analyzed using the Qualtrics software. The survey consisted of the initial informed consent and the brief anonymous personal information previously stated, followed by the 19-item BSS.

Results

Preliminary Results

No data was omitted in the sample unless the participant did not answer three or more of the survey items. If the participant did not answer three or more of the survey items, their responses were entirely removed from the study. The participants included 168 undergraduate students with 15 in the pre-dental group. The participants class standings were as follows, 63

freshman, 38 sophomores, 46 juniors, 38 seniors, and 11 senior +. There were 139 single major participants and 27 double major participants.

Hypothesis Tests

To test whether or not the dental field attracts individuals who are more prone to suicide, an independent sample t-test was used to compare pre-dental students to the control group consisting of all other participants. It was hypothesized that the pre-dental group would have a higher suicidality ratings than the control group. Table 1 provides a summary of the results. The t-test was not significant, t= -.976, p= .331, Cohen's d= 1.27. This suggests that the dental field does not attract individuals who are more prone to suicide. It was also hypothesized that the upperclassmen (juniors, seniors, and senior +) would have higher suicidality ratings than the underclassmen (freshmen and sophomores). The t-test was significant in the opposing direction, t= 2.063 , p= .041, Cohen's d= 0.321. Contrary to the hypothesis, the underclassmen had significantly (.041) higher suicidality ratings than the upperclassmen. These results are summarized in table 2. The final hypothesis was that individuals with double majors would have higher suicidality ratings than individuals with single majors. Both single and double majors had very similar suicidality ratings and no significant differences were observed. The t-test was not significant, t= -.267 , p= .790, Cohen's d= 0.403. These results are summarized in table 3.

Table 1. Pre-Dental Group Suicidality versus Control Group Suicidality

Group	N	Mean	SD	t	p	df	Cohen's d
Pre-Dental	15	14.5333	4.26823	-.976	.331	164	1.27
Control	151	18.5033	1.2108				

Table 2. Freshman & Sophomore Suicidality versus Junior & Senior(+) Suicidality

Group	N	Mean	SD	t	p	df	Cohen's d
Fresh. & Soph.	86	20.4419	15.09001	2.063	.041	164	0.321
Junior & Sen.(+)	80	15.6750	14.64757				

Table 3. Single Major Suicidality versus Double Major Suicidality

Group	N	Mean	SD	t	p	df	Cohen's d
Single Major	139	18.0072	1.29658	-.267	.790	164	.403
Double Major	27	18.8519	2.66437				

Discussion

Prior research, including Lange, Fung, & Dunning (2012) and the American Dental Association (1975), have demonstrated many inconsistencies regarding the suicidality of individuals in the dental field. Many researchers, including Touyz (2015), Lange, Fung, & Dunning (2012), and Ayatollahi, Ayatollahi, & Owila (2012), agree that dental professionals do have high stress levels and a higher than average suicide rate, however, it is not known why. There are many different factors that could be at fault, one being the possibility that the dental field attracts individuals who may be more prone to suicide. There is very little research that focuses on why this occurs, therefore, further investigation is crucial to the mental health of the dental field as a whole.

In general, support was found for underclassmen (freshman and sophomore undergraduate students) having higher suicidality rates than the upperclassmen (junior, senior, and senior + undergraduate students), although this contradicted the original hypothesis. This significant result suggests that the younger students are more suicidal than older students. It was hypothesized that the older students would have higher suicidality ratings due to the increasing rigor in courses from freshman to senior year as well as the pressures of graduate school or the entering the workforce, but this was not supported. It is likely that the stressors associated with being away from home for the first time and learning to live on one's own have a larger effect than school difficulty, causing higher suicidality scores.

It was also hypothesized that the pre-dental students would have higher suicidality scores, on average, than the general undergraduate population, however, this was not supported. Although the hypothesis was not supported, the result still has some implications in the area of mental health in the dental field. This result suggests that the dental field does not attract individuals who are more prone to suicide anymore so than any other professional field. Given this information, it is likely that there is another outlying factor in the process of becoming a dentist that causes higher than average suicide rates. It is possible that the amplified stresses of attending dental school from an undergraduate university or the looming debt that is usually accumulated to complete school result in some form of suicidality. However, if similar results were seen in the same type of study using enrolled dental students, this would suggest that it is some aspect of the profession itself that results in the higher than average suicide rates. Within the dental field there are many factors that could increase stress levels and ultimately levels of suicidality including running a business, managing employees, and catering to patient satisfaction.

The final hypothesis stated that individuals with double majors would have higher suicidality ratings, on average, than individuals with single majors. The rationale for this hypothesis was that the stress of taking on two different majors at once would produce more anxiety and depression in some individuals causing a higher suicidality score, however, this was not supported. This result suggests that students experience similar levels of stress regardless of

major. The lack of a significant difference between single and double majors parallels the results of Allred, Granger, & Hogstrom (2013).

The main limitation of this study was a small sample size for both the experimental group and the control group. Out of the 70 total pre-dental students at Ball State University, 15 participated in the survey; this low participation limited the generalizability of the results. It is difficult to tell if the results from the 15 pre-dental students is an accurate representation of the pre-dental students at Ball State, but also all undergraduate students who are pursuing a career in the dental field. Another limitation of this study was the over or under reporting of suicidal tendencies and whether or not the sample was skewed from these factors. It is possible that an individual who may be having suicidal thoughts could be more likely to participate in this study as a way of externalizing those thoughts. On the contrary, it is also possible that an individual who may be having suicidal thoughts could be less likely to participate in this study because they feel ashamed or do not want others to potentially find out. These are factors that are difficult to control for and difficult to identify in a sample size. The final limitation of this study is that there is no way to determine if the participant is accurately reporting their experiences with suicidality and I must assume that they both understand and truthfully report their responses.

The mental health of the dental field is an area that is heavily lacking in research overall. While higher than average suicide rates are a known issue, little is known about what actually causes this among dentists. Future research should explore other possible explanations for these suicide statistics such as stressors in dental school or career satisfaction. Replicating this study

using enrolled dental students would help shed light on the role of the total educational pathway on the mental health of becoming a dentist. Another area for future research would be a cross study of all pre-professional programs and their effects on mental health. Given the similar educational paths of common pre-professional programs such as pre-dental, pre-law, pre-medical, and pre-optometry, one would expect similar suicidality ratings among each program. Individual case studies that follow one individual from an undergraduate student to professional would also be useful in identifying specific stressors that could be at fault.

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Appendix A

Consent Form:

Study Title: ***Analyzing Dental Suicidality Rate Correlations: A Cross-Profession Survey***

Study Purpose and Rationale
The purpose of this study is to determine if there is a difference in suicidality, or an individual's proneness to commit suicide, in pre-dental students opposed to other undergraduate students to offer an explanation for reported high dental suicide rates.

Inclusion/Exclusion Criteria
Inclusion criteria is anyone enrolled as an undergraduate student at Ball State University who is 18 years or older.
Exclusion criteria are anyone NOT enrolled as an undergraduate student AND/OR under the age of 18.

Participation Procedures and Duration
In this study you will be answering a series of 19 questions on a scale from 0 to 2 on how well the information relates to you.

Data Confidentiality or Anonymity
All data will be maintained as confidential and no identifying information such as names will appear in any publication or presentation of the data.

Storage of Data and Data Retention Period
The data from this study will be stored indefinitely on a password-protected secure computer and no identifiable information will be collected or stored. Information will be stored indefinitely for possible future use and application in branching studies.

Risks or Discomforts
During this study you may find some of the questions discomforting or upsetting. If you experience any negative or suicidal thoughts, please contact the Ball State University Counseling Center immediately.

Who to Contact Should You Experience Any Negative Effects from Participating in this Study
Ball State University Counseling Center
Lucina Hall, Room 320
2000 W University Ave, Muncie, IN 47303
Phone: 765-285-1736
Email: counselctr@bsu.edu

Benefits
There are no perceived benefits for participating in this study.

Voluntary Participation
Your participation in this study is completely voluntary and you are free to withdraw your permission at anytime for any reason without penalty or prejudice from the investigator. Please feel free to email any questions of the investigator before participating in this study.

IRB Contact Information
For one's rights as a research subject, you may contact the following: For questions about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070 or at irb@bsu.edu.

Consent

By selecting yes below, you agree that you are at least 18 years old, currently enrolled as an undergraduate student at Ball State University, and willingly consent to participate in this survey. If you do not consent to participate in this study, please exit your internet browser.

Researcher Contact Information

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Appendix B

Instructions: Please answer all of the following questions to the best of your ability as they best apply to you.

Demographics:

1. Age:
2. What is your student status:
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior
3. What is you major:
4. Do you have a second major:
5. If you are a member of a pre-professional program, please indicate which program:

Modified Beck Scale for Suicide Ideation Survey

1. What is you wish to live?
    1.Moderate to strong
    2.Weak
    3.None
2. What is your wish to die?
    1.None
    2.Weak
    3.Moderate to strong
3. If you have contemplated suicide, your reasons for living/dying…
    1. For living outweigh for dying
    2. About Equal
    3. For dying outweigh for living
    0. I have never contemplated suicide
4. What is your desire to make a suicide attempt?
    1. None
    2. Weak
    3. Moderate to strong
5. If you have contemplated suicide, what was your level of suicidal restraint
    1. Would take precautions to save life
    2. Would leave life/death to chance
    3. Would avoid steps necessary to save or maintain life
    0. I have never contemplated suicide
6. If you have contemplated suicide, what was the duration of your suicidal thought?
    1. Brief, fleeting periods
    2. Longer periods

3. Continuous (chronic) or almost continuous
0. I have never contemplated suicide

7. If you have contemplated suicide, what was the frequency of your suicidal thoughts?
1. Rare, occasional
2. Intermittent
3. Persistent or continuous
0. I have never contemplated suicide

8. If you have contemplated suicide, what was your attitude towards your suicidal thoughts?
1. Rejecting
2. Ambivalent; indifferent
3. Accepting
0. I have never contemplated suicide

9. If you have contemplated suicide, what level of control did you have over these thoughts?
1. Have sense of control
2. Unsure of control
3. Have no sense of control
0. I have never contemplated suicide

10. If you have contemplated suicide, what was your level of concern with deterrents (e.g., family, religion, irreversibility)
1. Would not attempt because of deterrent
2. Some concern about deterrents
3. Minimal or no concern about deterrents
0. I have never contemplated suicide

11. If you have contemplated suicide, what was your reason for contemplating suicide?
1. To manipulate the environment; get attention; revenge
2. Escape, surcease, solve problems
3. A combination of the above options
0. I have never contemplated suicide

12. If you have contemplated suicide, to what level did you plan an attempt?
1. Not considered
2. Considered, but details not worked out
3. Details worked out / well formulated
0. I have never contemplated suicide

13. If you have contemplated suicide, what was the availability/opportunity to carry it out?
1. Method not available; no opportunity
2. Method would take time/effort; opportunity not readily available
3. Method and opportunity available
4. Future opportunity or availability of method anticipated
0. I have never contemplated suicide

14. If you have contemplated suicide, what was your sense of confidence to carry out the attempt?
1. No confidence

2. Unsure of confidence
3. Sure of confidence
0. I have never contemplated suicide

15. If you have contemplated suicide, did you expect/anticipate to go through with it?
1. No
2. Uncertain, not sure
3. Yes
0. I have never contemplated suicide

16. If you have contemplated suicide, what preparations did you make for the attempt?
1. None
2. Partial (e.g., starting to collect pills)
3. Complete (e.g., have pills, loaded gun)
0. I have never contemplated suicide

17. If you have contemplated suicide, did you write/type a suicide note?
1. No
2. Yes, started but not completed; only thought about
3. Yes, Completed
0. I have never contemplated suicide

18. If you have contemplated suicide, did you make any final acts in anticipation of death (e.g., insurance, will)
1. No
2. Thought about or made some arrangements
3. Made definite or complete arrangements
0. I have never contemplated suicide

19. If you have contemplated suicide, did you use deception/concealment of your contemplated attempt?
1. Revealed ideas openly
2. Held back on revealing
3. Attempted to deceive, conceal, lie

Appendix C

Original Beck Scale for Suicide Ideation:

1. Wish to live
    - 0.Moderate to strong
    - 1.Weak
    - 2.None
2. Wish to die
    - 0.None
    - 1.Weak
    - 2.Moderate to strong
3. Reasons for living/dying
    - 0.For living outweigh for dying
    - 1.About Equal
    - 2.For dying outweigh for living
4. Desire to make active suicide attempt
    - 0.None
    - 1.Weak
    - 2.Moderate to strong
5. Passive suicidal desire
    - 0.Would take precautions to save life
    - 1.Would leave life/death to chance
    - 2.Would avoid steps necessary to save or maintain life
6. Time dimension: Duration of suicide ideation/wish
    - 0.Brief, fleeting periods
    - 1.Longer periods
    - 2.Continuous (chronic) or almost continuous
7. Time dimension: Frequency of suicide thoughts
    - 0.Rare, occasional
    - 1.Intermittent
    - 2. Persistent or continuous
8. Attitude toward ideation/wish
    - 0.Rejecting
    - 1.Ambivalent; indifferent
    - 2.Accepting
9. Control over suicidal action/acting-out wish
    - 0.Have sense of control
    - 1.Unsure of control
    - 2.Have no sense of control
10. Deterrents to active attempt (e.g., family, religion, irreversibility)
    - 0.Would not attempt because of deterrent
    - 1.Some concern about deterrents

2.Minimal or no concern about deterrents

11. Reason for contemplated attempt
    0.To manipulate the environment; get attention; revenge
    1.Combination of 0 and 2
    2.Escape, surcease, solve problems
12. Method: Specificity/planning of contemplated attempt
    0.Not considered
    1.Considered, but details not worked out
    2.Details worked out / well formulated
13. Method: Availability/opportunity for contemplated attempt
    0.Method not available; no opportunity
    1.Method would take time/effort; opportunity not readily available
    2a.Method and opportunity available
    2b.Future opportunity or availability of method anticipated
14. Sense of “capability” to carry out attempt
    0.No courage, too weak, afraid, incompetent
    1.Unsure of courage, competence
    2.Sure of competence, courage
15. Expectancy/anticipation of actual attempt
    0.No
    1.Uncertain, not sure
    2.Yes
16. Actual preparation for contemplated attempt
    0.None
    1.Partial (e.g., starting to collect pills)
    2.Complete (e.g., have pills, loaded gun)
17. Suicide note
    0.None
    1.Started but not completed; only thought about
    2.Completed
18. Final acts in anticipation of death (e.g., insurance, will)
    0.None
    1.Thought about or made some arrangements
    2.Made definite or complete arrangements
19. Deception/concealment of contemplated suicide
    0.Revealed ideas openly
    1.Held back on revealing
    2.Attempted to deceive, conceal, lie

Appendix D

Office of Research Integrity
Institutional Review Board
(IRB) 2000 University Avenue
Muncie, IN 47306-0155
Phone: 765-285-5052
Email:orihelp@bsu.edu

DATE: March 1,2019

TO: Nick Wilson

FROM: Ball State University IRB

RE: IRB protocol #1363081-1
TITLE: Analyzing Dental Suicidality Rate Correlations: A Cross-Profession Survey
SUBMISSION TYPE: New Project

DECISION: APPROVED
PROJECT STATUS: EXEMPT
DECISION DATE: March 1, 2019
REVIEW TYPE: Exempt Review

The designated reviewer for the Institutional Review Board (IRB) reviewed your protocol and determined the procedures you have proposed are appropriate for exemption under the federal regulations. As such, there will be no further review of your protocol, and you are cleared to proceed with the procedures outlined in your protocol. As an exempt study, there is no requirement for continuing review. Your protocol will remain on file with the IRB as a matter of record. All research under this protocol must be conducted in accordance with the approved submission and in accordance with the principles of the Belmont Report.

Exempt Categories:

	Category 1: Research conducted in established or commonly accepted educational settings, that specifically involves normal educations practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
X	**Category 2:** Research that only includes interactions involving educational test (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside

	the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the humans subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 46.111(a)(7).
	Category 3: Research involving benign behavioral interventions in conjunction with the collection of information from an adult subject through verbal or written responses (including data entry) or audiovisual recording if the subject prospectively agrees to the intervention and information collection and at least one of the following criteria is met: (A) The information obtained is recorded by the investigator in such a manner that the identity of human subjects cannot be readily ascertained, directly or through identifiers linked to the subjects; (B) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (C) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can be readily ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 46.111(a)(7).
	Category 4: Secondary research for which consent is not required.
	Category 5: Research and demonstration projects that are conducted or supported by a Federal department or agency, or otherwise subject to the approval of department or agency heads, and that are designed to study, evaluate, improve, or otherwise examine public benefit or service programs, including procedures for obtaining benefits or services under those programs, possible changes in or alternatives to those programs or procedures, or possible changes in methods or levels of payment for benefits or services under those programs.

	Category 6: Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.
	Category 7: Storage or maintenance for secondary research for which broad consent is required: Storage or maintenance of identifiable private information or identifiable biospecimens for potential secondary research use if an IRB conducts a limited IRB review and makes the determinations required by 46.111(a)(8).
	Category 8: Secondary research for which broad consent is required: Research involving the use of identifiable private information or identifiable biospecimens for secondary research use, if the following criteria are met: (1)Broad consent for the storage, maintenance, and secondary research use of the identifiable private information or identifiable biospecimens was obtained in accordance with §46.116(a)(1) through (4), (a)(6), and (d); (2) Documentation of informed consent or waiver of documentation of consent was obtained in accordance with §46.117; and (3) An IRB conducts a limited IRB review and makes the determination required by §46.111(a)(7) and makes the determination that the research to be conducted is within the scope of the broad consent referenced in paragraph (d)(8)(i) of this section; and (iv) The investigator does not include returning individual research results to participants as part of the study plan. Note: This provision does not prevent an investigator from abiding by any legal requirements to return individual research results.

Ball State Specific Exempt Categories

	Category 9: Research involving publicly observable online behavior. Any online behavior that requires a person's permission to access is considered private and does not fall under this category. Information that cannot be accessed by the general population would also be considered private.

	Category 10: Research involving BSU students who are under 18 but have legal authority over their FERPA protected information. Only studies that fall into another exempt category except for sampling from BSU students who are under 18 can be considered exempt in this category.